عنوان مقاله:

Investigation of microstructure of A319-matrix in-situ casting composite reinforced with iron based intermetallic produced by stir casting process

محل انتشار:

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خلاصه مقاله:

In the current work, the effects of stir casting process parameters on the microstructural features of an in-situ Al 319 based composite reinforced with Fe-based intermetallic phase was studied. Parameters such as stirring temperature, cooling rate, and iron content were investigated to determine how they may influence the morphology, size, and distribution of iron-based intermetallic and eutectic silicon during the process. The optimized microstructures for different Fe contents were determined to be related to those samples processed for 5 minutes stirring at 1200 rpm and at a temperature near the β nucleation temperature and solidified in permanent molds. It was found that the harmful needle-like morphology of the intermetallics was significantly modified into a compact one through melt-shearing at semi-solid region leading to the modification of morphology, aspect ratio, and distribution of Fe-based .intermetallics

کلمات کلیدی:

Al composites; stir casting; Fe-based intermetallic; β phase modification

لینک ثابت مقاله در پایگاه سیویلیکا: